Claims

1. Communication model characterized in that whether reachability to the destination communication node is true or false is determined by comparing the mapped image (at mapping announcement system) of the pair consisting of a static identifier and dynamic address that indicate the destination communication node and the real image (at destination communication node) of the pair consisting of a static identifier and dynamic address, in the store-and-forward network where host reachability is obtained by association of static identifier and dynamic address.

2. Communication model according to Claim 1 characterized in that the procedure by which the compared elements in the said communication model is known by the originator communication node is executed in the following sequence:

(1) the originator communication node performs name query to the mapping announcement system, using the static identifier of the destination communication node as a key;

(2) in response to the name query, the mapping announcement system performs name resolution, returning the dynamic address of the destination communication node;

(3) the originator communication node sends a sign to the said dynamic address, merely requesting the destination communication node to return a response to the originator communication node; and

(4) the destination communication node sends a countersign to the originator communication node, that is, it sends a new carrier signal carrying the reply that should be made.

3. Communication model according to Claim 1 characterized in that a signal is used to send information that makes the originator communication node check the said host reachability and that is sent from the destination

communication node to the originator communication node.

4. Communication model according to Claim 1 characterized in that a signal is used to send information that makes the originator communication node check the said host reachability and that is sent from the destination communication node to the originator communication node and,
the information that makes the originator communication node check the said host reachability is the reply that should be made by the destination communication node and in that a signal is used to send the said information.

5. Communication model according to Claim 1 characterized in that a signal is used to send information that makes the originator communication node check the said host reachability and that is sent from the destination communication node to the originator communication node and,
the information that makes the originator communication node check reachability is the reply that should be made by the destination communication node and additional information and in that a signal is used to send the said information (former information).

6. Carrier signal with the function of carrying information between the originator communication node and the destination communication node in a store-and-forward network consisting of the originator communication node, destination communication node, and mapping announcement system, and where host reachability is obtained by association of static identifier and dynamic address. Carrier signal carrying the reply that should be made when the destination communication node responds to the response request from the originator communication node.

7. Carrier signal according to Claim 6 characterized by carrying additional information in addition to the reply that should be made.

8. Reachability check method by which the originator communication node

is made to check reachability to the destination communication node in a store-and-forward network consisting of the originator communication node , destination communication node , and mapping announcement system , and where host reachability is obtained by association of static identifier and dynamic address. Reachability check method characterized in that arbitrary information is stored at the mapping announcement system as the information used when making the originator communication node check reachability to the destination communication node and in that whether reachability to the destination communication node is true or false is determined by performing a given communication between the originator communication node and the destination communication node and then by comparing the reply that the destination communication node made to the originator communication node and the said stored arbitrary information.

9. Reachability check method according to Claim 8 characterized in that the said arbitrary information is the static identifier at the destination communication node.

10. Reachability check method according to Claim 8 characterized in that the said arbitrary information is every character string replaced with the static identifier that the originator communication node queries when making the communication node discover itself as the destination communication node.

11. Reachability check method according to Claim 8 characterized in that the said arbitrary information is the translation rule used by translating the static identifier that the originator communication node queries when making the communication node discover itself as the destination communication node.

12. Reachability check method according to Claim 8 characterized in that the originator communication node is made to check that the destination communication node is the true one as follows: arbitrary information is stored at the storage device of the destination communication node as the reply that

should be made, and then the said stored information is read from the said storage device for communication using a previously agreed method, and then returns a countersign including the said information as a minimum.

13. Reachability check method according to Claim 8 characterized in that a mapping announcement system is selected from among multiple ones that manage the static identifier of the destination communication node and then forward name query is performed to the mapping announcement system , and then the dynamic address of the destination communication node is obtained by switching among different mapping announcement systems for each destination communication node referenced, and then the said given communication is performed to the destination communication node by using the said obtained dynamic address.

14. Reachability check method according Claim 8 characterized in that whether reachability to the destination communication node is true or false is verified by a mapping announcement system selected from among multiple ones that manage the static identifier of the destination communication node and then forward name query performed to the mapping announcement system , and then the dynamic address of the destination communication node obtained by switching among different mapping announcement systems for each destination communication node referenced, and then the said given communication performed to the destination communication node by using the said obtained dynamic address again after the lapse of a given timer interval when check of reachability to the destination communication node fails.

15. Reachability check method according Claim 8 characterized in that the originator communication node conducts the reachability check method in place of a terminal not having the reachability check function.

16. Reachability check method according to Claim 8 characterized in that a further requirement is satisfied that the result of the said reachability check is

notified to at least either a given target person or public.

17. Reachability check method according to Claim 8 characterized in that the originator communication node receives a reachability check request for the destination communication node by a terminal not having the reachability check function, and then the originator communication node checks whether reachability to the destination communication node is true or false, and then the originator communication node notifies the result of the check to the said terminal not having the reachability check function.

18. Reachability check method according to Claim 8 characterized in that the originator communication node receives a reachability check request for the destination communication node by a terminal not having the reachability check function, and then the originator communication node checks whether reachability to the destination communication node is true or false, and then the originator communication node notifies the result of the check to the said terminal not having the reachability check function and,
when notifying the result of reachability check to the terminal not having the reachability check function, the time when normal access can be performed is included in the said notification, predicting the time the said terminal is affected by cache.

19. Reachability check method according to Claim 8 characterized in that the destination communication node whose address changes dynamically is managed by checking reachability to the destination communication node before performing network management that uses SNMP, and when the reachability check succeeds, the dynamic address of the destination communication node is delivered to network management that uses SNMP.

20. Reachability check method according to Claim 8 characterized in that when reachability check detects that the destination communication node is not present, the mapping announcement system is reconfigured to not announce the

association of static identifier and dynamic address of the destination communication node.

21. Reachability check method according to Claim 8 characterized in that when reachability check detects that the destination communication node is not present, the mapping announcement system is reconfigured to not announce the association of static identifier and dynamic address of the destination communication node and,
the resource record concerning the destination communication node is deleted at the DNS server that manages the domain name to which the destination communication node belongs.

22. Reachability check method according to Claim 8 characterized in that the static identifier indicating the originator communication node is notified to the store-and-forward network.

23. Reachability check method according to Claim 8 characterized in that closed connection is performed.

24. Reachability check method according to Claims 8 characterized in that the address of the destination communication node whose reachability check succeeds is stored at the originator communication node to omit the name resolution process of the mapping announcement system , and thus to reduce traffic of the mapping announcement system .

25. Program product characterized in that the result of the reachability check performed using the reachability check method according to Claim 8 is used as input.

26. Program product characterized in that the reachability check method according to Claim 8 is executed by either a computer or network connection equipment.

27. Media characterized in that it can be read by a computer and it stores the program product according to Claim 8 that the address of the destination communication node whose reachability check succeeds is stored at the originator communication node to omit the name resolution process of the mapping announcement system, and thus to reduce traffic of the mapping announcement system.

28. Communication node that is either a computer or network connection equipment; and that has a means to set at least a sign for each destination communication node , (and to also set the reply that ought to be made, when the reply is not the static identifier itself indicating the said destination communication node), and to send the said sign to the said destination communication node ; has a means to receive the countersign returned by the said destination communication node ; has a means to compare the reply that should be made carried by the said received countersign and the said set reply that ought to be made; and that checks whether reachability to the destination communication node is true or false based on whether the result of the comparison is true or false.

29. Communication node according to Claim 28 characterized in that one mapping announcement system is selected from among multiple systems that manage the static identifier used by the destination communication node, forward name query is performed, the dynamic address of the said destination communication node is obtained, and the said obtained dynamic address is used to communicate to the destination communication node.

30. Communication node according to Claim 28 characterized in that when reachability check to the destination communication node fails, reachability check is performed again after the lapse of a given time interval, to verify whether or not the correct destination communication node is reached.

31. Communication node according to Claims 28 characterized in that the said reachability is checked in response to a request from a communication node used by a general user.

32. Communication node according to Claim 28 characterized in that the result of the said reachability check is notified to at least either a given target person or the public.

33. Communication node according to Claim 28 characterized in that when a reachability check request for the destination communication node is received from a terminal not having the reachability check function, it is checked whether reachability to the destination communication node is true or false, and then the result of the reachability check is notified to the said terminal not having the reachability check function.

34. Communication node according to Claim 28 characterized in that when notifying the result of reachability check to the terminal not having the reachability check function, the time when normal access can be performed is included in the said notification, predicting the time when the said terminal is affected by cache.

35. Communication node according to Claim 28 characterized in that reachability check is connected to the subsequent network management that uses SNMP; in other words, the dynamic address of the destination communication node whose reachability is checked is delivered to the said network management, to manage the destination communication node whose address changes dynamically.

36. Communication node (mapping announcement system) characterized in that when reachability check detects that the destination communication node is not present on the network, the mapping announcement system is reconfigured to not announce the mapped image, or the pair consisting of a static identifier

and dynamic address of the destination communication node.

37. Communication node (mapping announcement system) according to Claim 36 characterized in that when reachability check detects that the destination communication node is not present on the network, the resource record concerning the destination communication node is deleted at the DNS server that manages the domain name to which the destination communication node belongs.

38. Communication node according to Claim 28, wherein the communication node receives a countersign carrying the static identifier that indicates the originator communication node in the store-and-forward network.

39. Communication node according to Claim 28, wherein the communication node only provides a given service to the communication node that notifies the static identifier that indicates the originator communication node, to the store-and-forward network set in advance.

40. Communication node according to Claim 28, wherein the communication node omits the name resolution process of the mapping announcement system by storing the address of the destination communication node whose reachability check succeeds.

41. Communication node according to Claim 28 characterized in that its function is shared by multiple devices.

42. Program product executed by either a computer or network connection equipment at the communication node according to Claim 28.

43. Media characterized in that it can be read by a computer and stores the program product executed by either a computer or network connection equipment according to Claims 28.

44. Communication node that is either computer or network connection equipment in a store-and-forward network that consists of the originator communication node , destination communication node , and mapping announcement system , and where host reachability is obtained by association of a static identifier and dynamic address, whose address is assigned dynamically or communication node that is integrated with the said communication node and that is referenced from an external network, characterized in that it is configured in the following manner: arbitrary information used when the originator communication node queries the mapping announcement system about the destination communication node is stored at the storage device of the said communication node as the reply that should be made, and then the said stored information is read from the said storage device either for a sign or for communication that uses the previously agreed method, and then either a countersign including the said information as a minimum or a response to the communication that uses the previously agreed method.

45. Communication node according to Claim 44 characterized in that the stored reply that should be made is a static identifier used to make the communication node discover itself as the destination communication node.

46. Communication node according to Claim 44 characterized in that it is configured in the following manner: the stored reply that should be made is set as any character string with which a static identifier is replaced that is used when the originator communication node queries the mapping announcement system regarding the destination communication node ; and then the said string is stored at the storage device of the said communication node; and then the said stored string is read from the said storage device when a communication request to a given port is received; and then a reply including the said string as a minimum is sent.

47. Communication node according to Claim 44 characterized in that it is configured as follows: the stored reply that should be made is read, and then a string including a string translated based on the translation rule as a minimum is sent as a reply.

48. Communication node according to Claim 44 characterized in that the stored reply that should be made is a static identifier used to make the communication node discover itself as the destination communication node and,
it is configured as follows: the host name (FQDN) that is set at the center-side mapping announcement system updated dynamically by dynamic DNS is set as a readable string read for the said communication node; and then the said string is stored at the storage device of the said communication node; and then the said stored string is read from the said storage device when a communication request to a given port is received; and then a character string including the said string as a minimum is sent as a reply.

49. Communication node according to Claim 44 characterized in that it is configured as follows: in addition to given waiting ports, at least ports for changing the setting of the said communication node or well-known ports for web service for general browsing are provided.

50. Communication node according to Claim 44 characterized in that a carrier signal carrying the reply that should be made is sent in response to a sign to allow the originator communication node to check reachability to the destination communication node.

51. Program product implemented at either a computer or network connection equipment as a function of the communication node according to Claim 44.

52. Media characterized in that it can be read and stores the program

product according to Claim 44.